

AMENDMENTS TO THE CLAIMS

Please cancel pending claims 1-17 without prejudice and insert the following new claims 18-37:

18. (New) An image analysis method comprising the steps of:

- i) capturing at least two primary images of at least one part of a sample in a first state using imaging means, the at least two primary images being captured at different focal planes;
- ii) capturing at least two secondary images of said at least one part of said sample in a second state using imaging means, the at least two secondary images being captured at differing focal planes;
- iii) selecting one of said primary images that has the best definition of at least one feature therein using processing means;
- iv) selecting one of said secondary images which has the best definition of said at least one feature therein using processing means; and
- v) comparing the primary and secondary images selected in steps (iii); and (iv) in order to determine the displacement, if any, of a feature within said part of said sample.

19. (New) The method of claim 18 further comprising the step of providing the imaging means in a form including a form from the group consisting of a microscope and an ultrasound transducer.

20. (New) The method of claim 18, further comprising the step of determining a best focus sub-image from the plurality of second plurality of images in step (iv).

21. (New) The method of claim 18, further comprising the step of measuring an out-of-plane displacement of at least one feature by multiplying a number of steps moved by the imaging means in achieving a desired secondary image quality by the step size.

22. (New) The method of claim 18, further comprising the step of providing said primary images by using an initial image captured by the imaging means having a single nominal focal plane depth.

23. (New) The method of claim 18, further comprising the step of using a composite image composed of sub-images each defining a focal plane depth to provide said primary images.

24. (New) The method of claim 18, further comprising the step of outputting to an output device at least one from the group consisting of a strain map, a deformation map, and a numerical measure of deformation.

25. (New) The method of claim 18, further comprising the step of measuring a deformation of the sample in the (xy) plane to a sub-pixel resolution of at least 0.1 pixels.

26. (New) An image analysis apparatus comprising imaging means arranged to capture an image of at least part of a sample, processing means arranged to process the image and drive means arranged to effect relative motion between the sample and the imaging means wherein the imaging means is arranged to capture at least two images of a part of the sample at at least two focal planes, relative movement between the sample and the imaging means being effected by the drive means the processing means being arranged to determine a correlation of each of said

images with a reference and to select one of the at least two images upon the basis of said correlation, and the said processing means being further arranged to determine a displacement, if any, of at least one feature within said part of the sample.

27. (New) An image analysis apparatus according to claim 26 further comprising having the imaging means include means from the group consisting of a microscope; and an ultrasound transducer.

28. (New) An image analysis apparatus according to claim 26 wherein the processing means is arranged to select a best focus sub-image from the at least two images.

29. (New) An image analysis apparatus according to claim 26, arranged to have the reference be provided using a primary image from an image having a nominal single focal plane.

30. (New) An image analysis apparatus according to claim 26, arranged to have the reference be provided using a sub-image from a composite primary image where each sub-image defines a localised focal plane.

31. (New) A data structure encoded upon a computer readable medium the data structure including:

a first entry corresponding to a data set indicative of part of a sample in a first state;

a plurality of secondary entries corresponding to at least two inputs received from an imaging means, indicative of said part of the sample in a second state;

the first entry and the at least two second entries arranged to be operated upon by processing means to enable respective subsets of data to be derived and to be operated upon by the processing means to determine a match therebetween.

32. (New) A data structure according to claim 31 wherein said first entry and said plurality of secondary entries are image data files.

33. (New) A data structure according to claim 31 wherein said subsets of data being sub-image data files relating to portions of an area imaged by said imaging means.

34. (New) A data structure according to claim 31, wherein said subsets of data files are arranged to be operated upon by the processing means by the execution of a technique from the group consisting of a correlation technique, a fringe projection technique, and a spectrum suppression technique.

35. (New) A data structure according to claim 31 wherein said second entries correspond to at least two image data sets obtained at differing focal planes.

36. (New) Computer software which when run on an apparatus causes a processing means of the apparatus to generate a data set indicative of an initial image of a sample in a first state and further causes said processing means to produce a plurality of data sub-sets indicative of regions of the sample from said data set, the software:

causing imaging means to capture a plurality of secondary images of the sample in a second state at at least two of focal planes and causing said processing means to produce a plurality of sub-images corresponding substantially in location to the regions of the sample defined by said data sub-sets from each of said plurality of secondary images and subsequently causing said processing means to correlate at least one of said data sub-sets with each corresponding one of said plurality of secondary sub-images by using said processing means to select one of the said secondary sub-images for each said data sub-set based upon said correlation and determining a displacement, if any, of least one feature within said sub-image.

37. (New) An image analysis method comprising the steps of:

- i) capturing at least two primary images of at least one part of a sample in a first state using imaging means, the at least two primary images being captured at different focal planes;
- ii) capturing at least two secondary images of said at least one part of said sample in a second state using imaging means, the at least two secondary images being captured at differing focal planes;
- iii) selecting one of said primary images that has the best definition of at least one feature therein using processing means;
- iv) selecting one of said secondary images which has the best definition of said at least one feature therein using processing means; and
- v) comparing the primary and secondary images selected in steps (iii); and (iv) in order to determine the displacement, if any, of a feature within said part of said sample; and

providing the imaging means in a form including a form from the group: (i) including a microscope; (ii) including an ultrasound transducer; and

determining a best focus sub-image from the plurality of second plurality of images in step (iv);

measuring an out-of-plane displacement of at least one feature by multiplying a number of steps moved by the imaging means in achieving a desired secondary image quality by the step size;

further comprising the steps of measuring a deformation of the sample in the (xy) plane to a sub-pixel resolution of at least 0.1 pixels, and

outputting at least one of the following to an output device: a strain map, a deformation map, a numerical measure of deformation.